INDEX TO SUBJECTS

A

Acetylcholinesterase, at myoneural junction, fine structural localization of, 247
Acrosome formation, in sperm of house cricket, EM study, 411
Alga, red, *Lomentaria baileyana* (Harv.) Farlow, chromatophore development, pits and other fine structure, 553
Amino acid incorporation, in cell-free liver systems, of rat, characterization of pattern of, by autoradiography of precipitin reactions, 628
Ameba, *Chaos chaos*, intracellular distribution of ferritin following microinjection, 159
—, *Chaos chaos*, use of colloidal gold for studies of intracellular exchanges in, 640
—, giant *Pelomyxa carolinensis*, EM studies of mitosis in, 57
—, *Tetrahymena pyriformis*, macronuclear events in synchronously dividing organisms, 515
Ameboid movement, syneresis in, its localization by interference microscopy and its significance, 185
Amphioxus, notochord, fine structure of, 646
Antigens, surface, and pinocytosis in mammalian cells, demonstration of with ferritin-antibody conjugates, 437
Autoradiography of precipitin reactions, for characterization of pattern of amino acid incorporation in cell-free liver systems, of rat, 628
—, two-emulsion method, study of nucleic acid synthesis in mouse ascites tumor cells, 633

B

Bacteria, *Acetobacter xylinum*, synthesis of cellulose by, ultrastructure of polymer, 31
—, *Bacillus cereus* (variant *alesti*), development of spore refractility, chemical and morphological studies of spore formation, 115
Bat, cricothyroid muscle, sarcoplasmic reticulum of, EM study, 571

C

Cartilage, rabbit, occurrence of collagen within vacuoles of Golgi apparatus, EM study, 599
Cell, jejunal epithelial, human, microvilli of, EM study, 623
Cells, ascites tumor, mouse, study of nucleic acid synthesis by two-emulsion autoradiography, 633
—, endothelial, quintuple-layered membrane junctions at terminal bars between, 443
—, HeLa, infected, observations on mode of release of herpes virus from, EM study, 589
—, hepatic, rat, mitochondria in lysosomes of, 198
—, human, in tissue culture, nuclear-cytoplasmic relationships of, method of embedding enucleate cytoplasm for EM, 195
Cells, liver, of rat, changes in function and structure of endoplasmic reticulum after cysteine administration, 177
—, lutein, mammalian, observations of fine structure of, 101
—, L-929, cytochemical description of multiplication of Mengovirus in, 1
—, mammalian, demonstration of surface antigens and pinocytosis with ferritin-antibody conjugates, 437
—, myocardial, of sheep, sarcolemmal invaginations and transverse tubular system, fine structure, 91
—, of proximal tubule, mouse kidney, fine structure of lipid granules in, 433
—, pancreatic acinar, of rat, degenerative changes caused by DL-ethionine, restitution following ethionine, changes during protein deprivation, EM study, 277, 297, 313
—, test, of ovary of tunicate *Styela*, fine structure of pigmented inclusions in, 637
Cellulose, synthesis of, by *Acetobacter xylinum*, ultrastructure of polymer, 31
Chromatophore development, pits and other fine structure, of red alga *Lomentaria baileyana* (Harv.) Farlow, 553
Cilia, gill, of mussel, *Elliptio complanatus*, evolutionary stability of 9+2 pattern of, 181
Collagen formation and wound healing, of guinea pigs, in experimental scurvy, fine structure, 533
—, within vacuoles of Golgi apparatus, occurrence of in rabbit cartilage, EM study, 599
Colloidal gold, use of for studies of intracellular exchanges in amoeba *Chaos chaos*, 640
— particles, uptake and transport of by rabbit cornea, *in vivo* and *in vitro*, 457, 481
Cornea, rabbit, *in vitro*, uptake and transport of colloidal particles by, 481
—, rabbit, *in vivo*, fine structure of, uptake and transport of colloidal particles by, 457
Cricket, acrosome formation in sperm of, EM study, 411
Cysteine administration, changes in function and structure of endoplasmic reticulum of rat liver cells after, 177
Cytodifferentiation, in *Drosophila melanogaster*, *rosy* mutant, 149

E

Embedding of enucleate cytoplasm for EM, nuclear-cytoplasmic relationships in human cells in tissue culture, 195
— technique for EM using Epon 812, 190
Embedments for EM, polyester-methacrylate, 615

Endoplasmic reticulum, rat liver cells, changes in function and structure of after cysteine administration, 177
Endothelial cells, quintuple-layered membrane junctions at terminal bars between, 443
Envelope, nuclear, some dynamic aspects of, EM study, 79
Epithelial cell, jejunal, human, microvilli of, EM study, 623
Epon 812, use of in embedding technique for EM, 190
Ethionine, degenerative changes caused by, restitution following, in rat pancreatic acinar cells, EM study, 277, 297

F

Ferritin, intracellular distribution of following microinjection, in amoeba *Chaos chaos*, 159
Ferritin-antibody conjugates, demonstration of surface antigens and pinocytosis with, in mammalian cells, 437
Fixation of neural tissues for EM, by perfusion with solutions of OsO_4, in rat, 385
Frog, nuclear envelope, some dynamic aspects, EM study, 79
Fruit fly, *Drosophila melanogaster*, *rosy* mutant, cytodifferentiation in, 149

G

Ganglia, acoustic, rat, fine structure, 329
Gill cilia, of mussel, *Elliptio complanatus*, evolutionary stability of 9+2 pattern of, 181
Glia and myelin sheaths, connections between, in developing mammalian CNS, EM study, 448
Gold, colloidal, use of for studies of intracellular exchanges in ameba *Chaos chaos*, 640
Golgi apparatus, in rabbit cartilage, occurrence of collagen within vacuoles of, EM study, 599
Guinea pig, axonal mitochondria, transient focal accumulation of during early stages of Wallerian degeneration, 361
——, wound healing and collagen formation, in experimental scurvy, fine structure, 533

H

Hamster, hepatic cells, reversal of mitochondrial membrane, 503
HeLa cells, infected, observations on mode of release of herpes virus from, EM study, 589
Human cells, HeLa, infected, observations on mode of release of herpes virus from, EM study, 589
— cells, in tissue culture, nuclear-cytoplasmic relationships of, method of embedding enucleate cytoplasm for EM, 195
—, jejunal epithelial cell, microvilli of, EM study, 623

I

Inclusions, pigmented, in test cells of ovary of tunicate *Styela*, fine structure of, 637
Intracellular exchanges in ameba *Chaos chaos*, use of colloidal gold for studies of, 640

J

Jejunal epithelial cell, of human, microvilli of, EM study, 623

K

Kidney, mouse, lipid granules in proximal tubule cells, fine structure, 433
—, rat, colorimetric investigation of uptake of intravenously injected horseradish peroxidase by, and effects of competition by egg white, 231
Kitten, developing CNS, connections between glia and myelin sheaths, EM study, 448

L

Lipid granules, in proximal tubule cells of mouse kidney, fine structure of, 433
Lipid-water systems, EM observations of liquid-crystalline phases of, 221
— systems, structure of liquid-crystalline phases of, 207
Liquid-crystalline phases of lipid-water systems, EM observations of, 221
— phases of lipid-water systems, structure of, 207
Liver cells, hamster, reversal of mitochondrial membrane, 503
— cells, rat, changes in function and structure of endoplasmic reticulum after cysteine administration, 177
— cells, rat, mitochondria in lysosomes of, 198
— microsomes, rat, isolation of smooth vesicles and free ribosomes from, 17
— systems, cell-free, of rat, characterization of pattern of amino acid incorporation in, by autoradiography of precipitin reactions, 628
Lutein cells, mammalian, observations on fine structure of, 101
Lymphocytes, thoracic duct, of rabbit, prolonged survival of in a diffusion chamber, 652
L-929 cells, cytochemical description of multiplication of Mengovirus in, 1

M

Macronuclear events in synchronously dividing amebae, *Tetrahymena pyriformis*, 515
Mammalian cells, demonstration of surface antigens and pinocytosis with ferritin-antibody conjugates, 437
— lutein cells, observations on fine structure of, 101
Membrane junctions, quintuple-layered, at terminal bars between endothelial cells, 443
—, mitochondrial, of hamster liver cells, reversal of, 503
Mengovirus, in L-929 cells, cytochemical description of multiplication of, 1
Methacrylate-polyester embedments for EM, 615
Microsomes, rat liver, isolation of smooth vesicles and free ribosomes from, 17
Microvilli, of human jejunal epithelial cell, EM study, 623
Mitochondria, axonal, guinea pig, transient focal

accumulation of during early stages of Wallerian degeneration, 361
Mitochondria, in lysosomes, of rat liver cells, 198
Mitochondrial membrane, hamster liver cells, reversal of, 503
Mitosis, in giant ameba *Pelomyxa carolinensis*, EM studies of, 57
Mitotic apparatus, of sea urchin, isolation of by controlled pH, 47
Mouse, ascites tumor cells, study of nucleic acid synthesis by two-emulsion autoradiography, 633
—, kidney, lipid granules in proximal tubule cells, fine structure, 433
—, oocyte nuclei, persistence of from fetus to maturity, autoradiographic study, 169
Muscle, cricothyroid, of bat, sarcoplasmic reticulum of, EM study, 571
—, salamander, sarcomere structure of myofibril during contraction, EM study, 135
Mussel, *Elliptio complanatus*, evolutionary stability of 9+2 pattern of gill cilia, 181
Myelin sheath and glia, connections between, in developing mammalian CNS, EM study, 448
Myocardial cells, sheep, sarcolemmal invaginations and transverse tubular system, fine structure, 91
Myofibril sarcomere structure during contraction, in salamander (axolotl), EM study, 135
Myoneural junction, acetylcholinesterase at, fine structural localization, 247

N

Nerve, axonal mitochondria, transient focal accumulation of during early stages of Wallerian degeneration, 361
—, developing mammalian CNS, connections between glia and myelin sheaths, EM study, 448
—, ganglia, acoustic, in rat, fine structure, 329
— tissues, fixation of for EM, by perfusion with solutions of OsO_4, in rat, 385
Notochord, of amphioxus, fine structure of, 646
Nuclear envelope, frog, some dynamic aspects of, EM study, 79
Nuclear-cytoplasmic relationships in human cells in tissue culture, method of embedding enucleate cytoplasm for EM, 195
Nuclei, mouse oocyte, persistence of from fetus to maturity, autoradiographic study, 169
Nucleic acid synthesis, in mouse ascites tumor cells, studied by two-emulsion autoradiography, 633

O

Oocyte nuclei, of mouse, persistence of from fetus to maturity, autoradiographic study, 169
Ovary, of tunicate *Styela*, fine structure of pigmented inclusions in test cells of, 637

P

Pancreatic cells, rat, degenerative changes caused by DL-ethionine, restitution following ethionine, changes during protein deprivation, EM study, 277, 297, 313
Peroxidase, horseradish, intravenously injected, colorimetric investigation of uptake of by rat kidney, and effects of competition by egg white, 231
Pits, chromatophore development, and other fine structure, of red alga *Lomentaria baileyana* (Harv.) Farlow, 553
Polyester-methacrylate embedments for EM, 615
Polymer, ultrastructure of, synthesis of cellulose by *Acetobacter xylinum*, 31
Protein deprivation, changes during, in rat pancreatic acinar cells, EM study, 313

R

Rabbit, cartilage, occurrence of collagen within vacuoles of Golgi apparatus, EM study, 599
—, cornea, *in vivo*, fine structure of, uptake and transport of colloidal particles by, 457
—, cornea, living, *in vitro*, uptake and transport of colloidal particles by, 481
—, thoracic duct lymphocytes, prolonged survival of in a diffusion chamber, 652
Radioactive labels, L-valine-C^{14}, L-leucine-C^{14}, L-isoleucine-C^{14}, characterization of pattern of amino acid incorporation in cell-free liver systems, by autoradiography of precipitin reactions, 628
— labels, thymidine-H^3, incorporation in oocyte nuclei, of mouse, autoradiographic study, 169
— labels, thymidine-H^3 and uridine-2-C^{14}, uptake in mouse ascites tumor cells, study of nucleic acid synthesis by two-emulsion autoradiography, 633
Rat, acoustic ganglia, fine structure, 329
—, cell-free liver systems, characterization of pattern of amino acid incorporation in, by autoradiography of precipitin reactions, 628
— kidney, colorimetric investigation of uptake of intravenously injected horseradish peroxidase by, and effects of competition by egg white, 231
—, liver cells, mitochondria in lysosomes of, 198
— liver, changes in function and structure of endoplasmic reticulum after cysteine administration, 177
—, liver microsomes, isolation of smooth vesicles and free ribosomes from, 17
—, neural tissues, fixation of for EM, by perfusion with solutions of OsO_4, 385
—, pancreatic acinar cells, degenerative changes caused by DL-ethionine, restitution following ethionine, changes during protein deprivation, EM study, 277, 297, 313
—, spleen, properties and distribution of ribonuclease in, intracellular localization of enzymes, 263
Ribonuclease, in rat spleen, properties and distribution of, intracellular localization of enzymes, 263
Ribosomes, free, from rat liver microsomes, isolation of smooth vesicles and, 17

S

Salamander (axolotl), myofibril sarcomere structure during contraction in, EM study, 135
Sarcolemmal invaginations and transverse tubular

system, of sheep myocardial cells, fine structure, 91
Sarcomere structure of myofibril during contraction, in salamander (axolotl), EM study, 135
Sarcoplasmic reticulum, of bat cricothyroid muscle, EM study, 571
Scurvy, experimental, in guinea pigs, fine structure of wound healing and collagen formation in, 533
Sea urchin, mitotic apparatus of, isolation of by controlled pH, 47
Sheep, myocardial cells, sarcolemmal invaginations and transverse tubular system, fine structure, 91
Sperm, of house cricket, acrosome formation in, EM study, 411
Spleen, rat, properties and distribution of ribonuclease in, intracellular localization of enzymes, 263
Spore development and refractility, in *Bacillus cereus* (variant *alesti*), chemical and morphological studies of, 115
Syneresis in amoeboid movement, its localization by interference microscopy and its significance, 185

T

Terminal bars between endothelial cells, quintuple-layered membrane junctions at, 443
Test cells, of ovary of tunicate *Styela*, fine structure of pigmented inclusions in, 637
Thoracic duct lymphocytes, of rabbit, prolonged survival of in a diffusion chamber, 652
Tumor cells, ascites, mouse, study of nucleic acid synthesis by two-emulsion autoradiography, 633
Tunicate, *Styela*, fine structure of pigmented inclusions in test cells of ovary of, 637

V

Virus, herpes, observations on mode of release of from HeLa cells, EM study, 589
— (Mengovirus) in L-929 cells, cytochemical description of multiplication of, 1

W

Wallerian degeneration, transient focal accumulation of axonal mitochondria during early stages of, in guinea pig, 361
Wound healing and collagen formation, of guinea pigs, in experimental scurvy, fine structure, 533

CONTENTS

NUMBER 1, JANUARY, 1962

1 FRANKLIN, RICHARD M. A cytochemical description of the multiplication of Mengovirus in L-929 cells

17 CHAUVEAU, J., MOULÉ, Y., ROUILLER, C., and SCHNEEBELI, J. Isolation of smooth vesicles and free ribosomes from rat liver microsomes

31 OHAD, I., DANON, D., and HESTRIN, S. Synthesis of cellulose by *Acetobacter xylinum*. V. Ultrastructure of polymer

47 KANE, R. E. The mitotic apparatus: Isolation by controlled pH

57 ROTH, L. E., and DANIELS, E. W. Electron microscopic studies of mitosis in amebae. II. The giant ameba *Pelomyxa carolinensis*

79 MERRIAM, R. W. Some dynamic aspects of the nuclear envelope

91 SIMPSON, F. O., and OERTELIS, S. J. The fine structure of sheep myocardial cells; sarcolemmal invaginations and the transverse tubular system

101 ENDERS, ALLEN C. Observations on the fine structure of lutein cells

115 YOUNG, I. ELIZABETH, and FITZ-JAMES, PHILIP C. Chemical and morphological studies of bacterial spore formation. IV. The development of spore refractility

135 GILËV, VLADIMIR P. A study of myofibril sarcomere structure during contraction

149 RIZKI, T. M., and RIZKI, ROSE M. Cytodifferentiation in the *rosy* mutant of *Drosophila melanogaster*

159 FELDHERR, CARL M. The intracellular distribution of ferritin following microinjection

169 RUDKIN, GEORGE T., and GRIECH, HELEN A. On the persistence of oocyte nuclei from fetus to maturity in the laboratory mouse

BRIEF NOTES

177 EMMELOT, P., MIZRAHI, I. J., NACCARATO, R., and BENEDETTI, E. L. Changes in function and structure of the endoplasmic reticulum of rat liver cells after administration of cysteine

181 SATIR, PETER. On the evolutionary stability of the 9 + 2 pattern

185 ALLEN, ROBERT D., and COWDEN, RONALD R. Syneresis in ameboid movement: Its localization by interference microscopy and its significance

190 CRAIG, ELSON L., FRAJOLA, WALTER J., and GREIDER, MARIE H. An embedding technique for electron microscopy using Epon 812

195 MICOU, JULIE, COLLINS, CARTER C., and CROCKER, T. TIMOTHY. Nuclear-cytoplasmic relationships in human cells in tissue culture. V. A method for embedding enucleate cytoplasm for electron microscopy

198 ASHFORD, THOMAS P., and PORTER, KEITH R. Cytoplasmic components in hepatic cell lysosomes

203 AMONG THE CONTRIBUTORS

NUMBER 2, FEBRUARY, 1962

207 LUZZATI, V., and HUSSON, F. The structure of the liquid-crystalline phases of lipid-water systems

221 STOECKENIUS, WALTHER. Some electron microscopical observations on liquid-crystalline phases in lipid-water systems

123 STRAUS, W. Colorimetric investigation of the uptake of an intravenously injected protein (horseradish peroxidase) by rat kidney and effects of competition by egg white
247 BARRNETT, RUSSELL J. The fine structural localization of acetylcholinesterase at the myoneural junction
263 EICHEL, HERBERT J., and ROTH, JAY S. Intracellular localization of enzymes in spleen. II. Some properties and the distribution of ribonuclease in rat spleen
277 HERMAN, LAWRENCE, and FITZGERALD, PATRICK J. The degenerative changes in pancreatic acinar cells caused by DL-ethionine
297 HERMAN, LAWRENCE, and FITZGERALD, PATRICK J. Restitution of pancreatic acinar cells following ethionine
313 WEISBLUM, BERNARD, HERMAN, LAWRENCE, and FITZGERALD, PATRICK J. Changes in pancreatic acinar cells during protein deprivation
329 ROSENBLUTH, JACK. The fine structure of acoustic ganglia in the rat
361 WEBSTER, HENRY DEF. Transient, focal accumulation of axonal mitochondria during the early stages of Wallerian degeneration
385 PALAY, SANFORD L., MCGEE-RUSSELL, S. M., GORDON, SPENCER, JR., and GRILLO, MARY A. Fixation of neural tissues for electron microscopy by perfusion with solutions of osmium tetroxide
411 KAYE, JEROME S. Acrosome formation in the house cricket

BRIEF NOTES

433 THOENES, W. Fine structure of lipid granules in proximal tubule cells of mouse kidney
437 EASTON, JOHN M., GOLDBERG, BURTON, and GREEN, HOWARD. Demonstration of surface antigens and pinocytosis in mammalian cells with ferritin-antibody conjugates
443 MUIR, A. R., and PETERS, A. Quintuple-layered membrane junctions at terminal bars between endothelial cells
453 BUNGE, MARY BARTLETT, BUNGE, RICHARD P., and PAPPAS, GEORGE D. Electron microscopic demonstration of connections between glia and myelin sheaths in the developing mammalian central nervous system

455 AMONG THE CONTRIBUTORS

NUMBER 3, MARCH, 1962

457 KAYE, GORDON I., and PAPPAS, GEORGE D. Studies on the cornea. I. The fine structure of the rabbit cornea and the uptake and transport of colloidal particles by the cornea *in vivo*
481 KAYE, GORDON I., PAPPAS, GEORGE D., DONN, ANTHONY, and MALLETT, NANCY. Studies on the cornea. II. The uptake and transport of colloidal particles by the living rabbit cornea *in vitro*
503 CHANDRA, SATISH. The reversal of mitochondrial membrane
515 ELLIOTT, ALFRED M., KENNEDY, JOHN R., JR., and BAK, IL JIN. Macronuclear events in synchronously dividing *Tetrahymena pyriformis*
533 ROSS, RUSSELL, and BENDITT, EARL B. Wound healing and collagen formation. II. Fine structure in experimental scurvy
553 BOUCK, G. BENJAMIN. Chromatophore development, pits, and other fine structure in the red alga, *Lomentaria baileyana* (Harv.) Farlow
571 REVEL, J. P. The sarcoplasmic reticulum of the bat cricothyroid muscle
589 EPSTEIN, M. A. Observations on the mode of release of herpes virus from infected HeLa cells
599 SHELDON, H., and KIMBALL, F. B. Studies on cartilage. III. The occurrence of collagen within vacuoles of the Golgi apparatus
615 LOW, FRANK N., and CLEVENGER, MAX R. Polyester-methacrylate embedments for electron microscopy

BRIEF NOTES

623 BROWN, ARNOLD L., JR. Microvilli of the human jejunal epithelial cell

628 MORGAN, W. S., PERLMANN, P., AND HULTIN, T. Characterization of the pattern of amino acid incorporation in cell-free liver systems by autoradiography of precipitin reactions

633 BASERGA, RENATO. A study of nucleic acid synthesis in ascites tumor cells by two-emulsion autoradiography

637 KESSEL, RICHARD G. Fine structure of pigment inclusions in the test cells of the ovary of *Styela*

640 FELDHERR, CARL M., and MARSHALL, J. M., JR. The use of colloidal gold for studies of intracellular exchanges in the ameba *Chaos chaos*

646 EAKIN, RICHARD M., and WESTFALL, JANE A. Fine structure of the notochord of amphioxus

652 SHELTON, EMMA. Prolonged survival of rabbit thoracic duct lymphocytes in a diffusion chamber

657 AMONG THE CONTRIBUTORS

661 INDEXES TO VOLUME 12